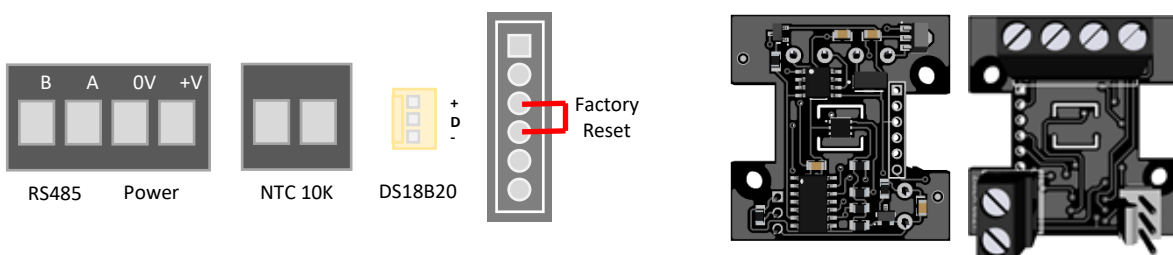


Technical Data

Model	0021-M
Power supply	5.5V ... 28V DC SELV
Power consumption	typical < 2 mA ; peak < 15 mA
Operating environment	10 ... 90 % RH -40 ... +85 °C
Serial interface	RS485
Bus protocol	Modbus RTU
Default setting	Address 200 9600 N-8-1
Factory reset	Jumper on pad 3 & 4 while power cycle
Measurement range	-40 ... +125 °C 0 ... 100% RH
Measurement accuracy	±0.4 °C , -10 ... 85 °C ± 4% RH , 0 ... 80% RH
Response / Conversion Time	Min 180 ms Min 800 ms using DS18B20 extern sensor
Interface extern sensor	1-Wire DS18B20 Analog NTC10K
Connectors	Screw terminal 0.5 ... 1.5 mm ² wire 3 pin Molex® KK® 254
Measurement parameter(s)	Temperature Relative humidity Dew point temperature
Supported function codes	0x03 Read Holding Registers 0x06 Write Single Register 0x10 Write Multiple Registers
Degree of Protection	IP20
Standards	2014/30/EU Electromagnetic compatibility (EMC) EN61000-6-1 Generic Immunity EN61000-6-3 Generic Emission
Dimensions	W 35 x H 36 x D 15 mm
Weight	< 10 g
Recommended Enclosure	1 module 502D0510 / 530D6534



"Elektrisk og elektronisk udstyr (EEE) indeholder materialer, komponenter og stoffer, der kan være farlige og skadelige for menneskers sundhed og for miljøet, når affaldet af elektrisk og elektronisk udstyr (WEEE) ikke bortskaffes korrekt. Produkter, der er mærket med nedenstående overkrydsede skraldespand, er elektrisk og elektronisk udstyr. Den krydsede skraldespand symboliserer, at affald af elektrisk og elektronisk udstyr ikke må bortskaffes sammen med usorteret husholdningsaffald, men skal indsamles særskilt. Til dette formål har alle kommuner etableret indsamlingsordninger, hvor affald af elektrisk og elektronisk udstyr gratis kan afleveres af borgerne på genbrugsstationer eller andre indsamlingssteder eller hentes direkte fra husholdningerne. Nærmere information skal indhentes hos kommunens tekniske forvaltning. Brugere af elektrisk og elektronisk udstyr må ikke bortskaffe affald af elektrisk og elektronisk udstyr sammen med husholdningsaffald. Brugere skal benytte de kommunale indsamlingsordninger for at mindske den miljømæssige belastning i forbindelse med bortskaffelse af affald af elektrisk og elektronisk udstyr og øge mulighederne for genbrug, genanvendelse og nyttiggørelse af affald af elektrisk og elektronisk udstyr"



0x03 Read Holding Register

Request

Modbus Address	Function Code	Communication Address		Quantity of Registers		CRC	
		HB	LB	HB	LB	LB	HB
XX	0x03	XX	XX	XX	XX	XX	XX

Response

Modbus Address	Function Code	Byte Count	N * Registers		CRC	
			HB	LB	LB	HB
XX	0x03	XX	XX	XX	XX	XX

Request Sample Read temperature and Humidity from Address 200

Modbus Address	Function Code	Communication Address		Quantity of Registers		CRC	
		HB	LB	HB	LB	LB	HB
200	0x03	0x00	0x00	0x00	0x02	0xD5	0x92

Response Sample Read temperature and Humidity from Address 200

Modbus Address	Function Code	Byte Count	Register 0x0000		Register 0x0001		CRC	
			HB	LB	LB	HB	LB	HB
200	0x03	0x04	0x00	0xCC	0x01	0xC1	0xA3	0x00
			204		449			

Temperature 20,4 °C
Humidity 44,9 % RHD

Register 0x03

Address	Description	
0	Room temperature	16 Bit Signed
1	Humidity	16 Bit word
2	Dew Point	16 Bit Signed
3	NTC10K Temperature Sensor	16 Bit Signed
4	DS18B20 Temperature Sensor	16 Bit Signed
5	Offset Temperature	16 Bit Signed
6	Offset NTC10K	16 Bit Signed
7	Offset DS18B20	16 Bit Signed
8	N/A	N/A
9	Min Room Temperature	16 Bit Signed
10	Max Room Temperature	16 Bit Signed
11	Min Humidity	16 Bit Word
12	Max Humidity	16 Bit Word
13	Min Dew Point	16 Bit Signed
14	Max Dew Point	16 Bit Signed
15	Min NTC10K Temperature Sensor	16 Bit Signed
16	Max NTC10K Temperature Sensor	16 Bit Signed
17	Min DS18B20 Temperature Sensor	16 Bit Signed
18	Max DS18B20 Temperature Sensor	16 Bit Signed

0x06 Write Single Register

Request

Modbus Address	Function Code	Communication Address		Register Value		CRC	
		HB	LB	HB	LB	LB	HB
XX	0x06	XX	XX	XX	XX	XX	XX

Response

Modbus Address	Function Code	Communication Address		Register Value		CRC	
		HB	LB	HB	LB	LB	HB
XX	0x06	XX	XX	XX	XX	XX	XX

Request Sample Change Modbus address from 200 to 10

Modbus Address	Function Code	Communication Address		Register Value		CRC	
		HB	LB	HB	LB	LB	HB
200	0x06	0x00	0x00	0x00	0x0A	0x18	0x54

Response Sample Change Modbus address from 200 to 10

Modbus Address	Function Code	Communication Address		Register Value		CRC	
		HB	LB	HB	LB	LB	HB
200	0x06	0x00	0x00	0x00	0x0A	0x18	0x54

Register 0x06 & 0x10

Address	Description	Value		Default
		HB	LB	
0	Modbus Address	0x00	Address	200
0	UART Settings	0x01	Settings	0x00
1	N/A			
2	N/A			
3	N/A			
4	N/A			
5	Offset Temperature	-32767 - 32767		0
6	Offset NTC10K	-32767 - 32767		0
7	Offset DS18B20	-32767 - 32767		0
8	N/A			
9	Reset Min / Max Values	1		

Description	Value LB
9600	000XX000
19200	000XX001
38400	000XX010
57600	000XX011
N/A	000XX100
4800	000XX101
2400	000XX110
1200	000XX111
N-8-1 8bit	00000XXX
N-8-2 9bit	00001XXX
E-8-1 9bit	00010XXX
O-8-1 9bit	00011XXX

0x10 Write Multiple Registers

Request

Modbus Address	Function Code	Communication Address		Quantity of Registers		Byte Count	Register Value		CRC	
		HB	LB	HB	LB		HB	LB	LB	HB
XX	0x10	XX	XX	XX	XX	XX	XX	XX	XX	XX

Response

Modbus Address	Function Code	Communication Address		Quantity of Registers		CRC	
		HB	LB	HB	LB	LB	HB
XX	0x10	XX	XX	XX	XX	XX	XX

Request Sample Change NTC10K and DS18B20 Offset

Modbus Address	Function Code	Communication Address		Quantity of Registers		Byte Count	Register Value		Register Value		CRC	
		HB	LB	HB	LB		HB	LB	LB	HB		
200	0x10	0x00	0x06	0x00	0x02	4	0x00	0x0A	0xFF	0xEC	0xC1	0x65
							10		-20			

Offset NTC10K 1,0 °C
Offset DS18B20 -2,0 °C

Response Sample Change Modbus address to 10

Modbus Address	Function Code	Communication Address		Quantity of Registers		CRC	
		HB	LB	HB	LB	LB	HB
200	0x10	0x00	0x06	0x00	0x02	0xB0	0x50

Register 0x06 & 0x10

Address	Description	Value		Default
		HB	LB	
0	Modbus Address	0x00	Address	200
0	UART Settings	0x01	Settings	0x00
1	N/A			
2	N/A			
3	N/A			
4	N/A			
5	Offset Temperature	-32767 - 32767		0
6	Offset NTC10K	-32767 - 32767		0
7	Offset DS18B20	-32767 - 32767		0
8	Baseline count	1 - 65535		20000
9	Reset Min / Max Values	1		

Description	Value LB
	000XX000
	000XX001
	000XX010
	000XX011
	000XX100
	000XX101
	000XX110
	000XX111
N-8-1 8bit	00000XXX
N-8-2 9bit	00001XXX
E-8-1 9bit	00010XXX
O-8-1 9bit	00011XXX